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The President's Speech to the Association

AT the Annual General Meeting, held in the Physics Lecture Theatre of Queen's University, Belfast, on September 6th, the President delivered the traditional Address to the Association. In discussing a broad variety of topics, lit with characteristic flashes of the Presidential wit, Professor Robertson said :—

The President of an Association such as this is subject, believe it or not, to many ordeals during his year of office but the greatest is saved till nearly the last in the form of his Presidential Address to the Annual General Meeting. It hangs over him like the sword of Damocles which was suspended, appropriately enough, if you remember, by a single horse-hair ; and it causes him many sleepless moments as the time of the Annual Congress draws near, his only consolation indeed being in the knowledge that when with the arrival of the fateful hour his agony of suspense is over, that of his audience is just beginning as yours is now. Fortunately for you, however, the Provisional Committee—with a foresight it did not perhaps realise—so organised the programme of this meeting as to leave only about half the usual time for this particular item, so that your ordeal will at least be short.

I must confess that when I started to think about what I should say to you on this occasion I felt a great deal of sympathy with the young Sultan who inherited his father's harem and knew what he was supposed to do but did not know where to begin ! The activities of an Association such as this range over such a wide field that your President has to deal with a whole host of subjects ranging in my own case from the possible dangers of widespread oral administration of antibiotics through the vagaries of pig marketing schemes to the complexities of the provincial and local organisations of the Ministry of Agriculture and Fisheries ; and I would not like to have to say which of these subjects is the more complex and unpredictable ! It is, however, a sign of health on the part of any Association and of the profession to which it belongs, when the President is confronted by so many topics on which to base his address that he is driven into a condition of pitiful indecision. That state of affairs, so ruinous to the mental calm of your President, is a sure indication of the vitality of his Association and his profession ; and happily with us it obtains to-day. However, my task has been eased by the activities of our Secretarial and Editorial Departments and in particular by the excellent summary of the year's activities given in the Annual Report in the Congress Handbook which you have all doubtless read. From that you will note that the Association has had another successful year ; its numbers and influence have continued to grow and its financial position as our Treasurer will be indicating later is reasonably satisfactory. While we can feel satisfied and justly proud of that state of affairs, I must remind you that it has only been achieved as the result of the loyalty and self-sacrificing devotion and labours over many years of the administrative and executive officials of the Association and of Chairmen of Committees and Members of Council whom you have seen fit to nominate to that office.

I feel, with so many topics to choose from, that it will be of more value if I leave the domain of domestic detail and look at the broader field of our activity in relation to the community as a whole in the light of my own experiences during the year that has passed ; and though there is, I understand, a belief in some quarters that those members of the profession who are engaged in teaching exist in the sedate and rarified atmosphere of an academic ivory tower on which the hard realities of the world make little or no impression, it will be my aim to dispel that notion as far as I can.

Liaison with Outside Bodies

In our affairs to-day, one of the things which has given me the greatest satisfaction is the liaison we have, and the pleasant relationship we enjoy, with a number of public and professional bodies from the Government downwards. We are in regular consultation, for example, with the National Farmers Union—as well we may be, since they represent the main body of our clients. We know and esteem the leaders of the medical profession and we have talked with them upon subjects as varied as the inspection of meat, the possibilities of infection of human beings by animals, the spread of mycotic diseases and so on. We held a most fruitful conference, as you will recall, with the Animal Feeding Stuffs Trade, and we have a permanent liaison committee with them. It is right that these things should be so, and that all these contacts should increase, as

should those with workers in the kindred sciences. For veterinary science cannot be isolated and set apart, it is indissolubly welded into a whole range of social and public activities, and the gradual recognition on the part of the community generally that this is so must be to all of us a source of satisfaction.

We have, however, a long way to go before our contribution is fully recognised and it is in that field that the main scope of our Association lies. Educational standards and disciplinary action are in the able hands of the Council of the Royal College of Veterinary Surgeons, but to this Association there falls the task of interpreting the views of the profession to the community at large and of seeing that the contribution which it can make to the common weal is fully recognised and fully utilised. That, Ladies and Gentlemen, as you and I know, is a task in which an enormous amount is yet to be done. When speeches are made and conferences held and articles, informed or otherwise, are written about the dramatic increase in the world's population—80,000 more mouths at the world's breakfast table every morning, as the cliché goes—and the consequent necessity for increased production of foodstuffs, particularly those of animal origin, we seldom hear about the contribution which veterinary science is making and can continue to make to the solution of such problems. Yet all over the world animal disease, both clinical and sub-clinical—much of it preventable—continues to exact a colossal toll. That is a challenge which faces our profession, and it is a challenge for which we are by no means ill-equipped if only we are given a chance to utilise all our skills and mobilise all our resources.

Our Relationship with Agriculture

We realise, if others do not, what a large part has been played by our profession in the improvement in fertility and productivity of farm stock which has taken place in recent decades. We know, too, how veterinary scientists studying problems of husbandry and health have helped increase the output of many farms, as has been strikingly exemplified by the work of our colleagues here in Northern Ireland on the problems of pig housing which you are to hear described and later to see illustrated in practice in the course of to-morrow's programme. And indeed, the intense agricultural activity of this green and pleasant land in which we are privileged to meet and the literally enormous output of foodstuffs about which we heard something yesterday, accomplished by a relatively small but industrious population, aided by a talented and devoted veterinary science give an indication of what can be done when the will is there and when our profession is given a chance to employ its knowledge and exercise its skill in all aspects of disease and health. It is my firm belief that in this field of animal health or animal husbandry, call it what you will, there lies one of the principal potentialities for an increase in our professional work and in our professional contribution to the welfare of the community, and that we must therefore take every opportunity to bring that aspect to the notice of our fellow men.

There are, of course, many ways in which that can be done and we have, it is true, made a useful start. We are in regular consultation with various farming and allied organisations, although to date our collaboration has to my mind often been in too restricted a field and prompted to too great an extent by relatively minor short-term economic problems rather than by a statesman-like attempt to co-ordinate the activities of our two bodies in a common effort to increase the efficiency of our animal production. To that extent the degree of collaboration between our profession and the various farming and allied organisations like Marketing Boards contrasts unfavourably with the position in many other countries, particularly I would say the Scandinavian ones, where the various producer co-operatives and similar organisations have, as Director Woldike Nielsen showed in his stimulating contribution yesterday, played a key rôle in supporting and indeed on occasion in stimulating the veterinary profession to apply all its available knowledge to the eradication of disease, the promotion of health, and the stimulation of production. To my mind, we in this country have tended to get embroiled far too often in haggling over minor details of charges instead of marching side by side in mutual support and confidence in a common struggle to reduce and where possible prevent the ravages of animal disease. It is not for me to apportion blame—and indeed I must emphasise the dangers of any facile assumption that the difficulties are wholly due to cupidity or lack of foresight on the part of others. To what extent have we frightened or befogged our lay friends by an unthinking adherence to a highly technical jargon, much of which often means little enough even to ourselves if we stop to analyse it closely and which certainly means nothing to the uninitiated, though it may mesmerise them. I listened to an excellent sermon on Sunday in one of the city churches on the power of words ; it is a power which we often underestimate and we must always keep in mind that words have the power to alienate as well as to win support. We must ask ourselves also to what extent the trouble is due to our own failure, individually and collectively, to make it clear that we are not just a collection of specialists bargaining in tradesmen-like fashion our varying technical skills in repairing and reducing the ravages of animal disease ; but that we are members of an ancient and honourable profession, disciplined in education and in ethics, dedicating our lives often at considerable personal inconvenience and not infrequently at considerable personal sacrifice, to the task of alleviating suffering in the animal kingdom and whenever possible preventing it by the promotion of positive health. In doing so we have the added satisfaction of being of material service to our fellow men by making possible increased production of essential products and in helping to prevent the spread of animal disease to man. A more general realisation of these facts and of the extent to which the profession is both able and eager to help in the framing of policies as well as in their execution would, I am sure, lead to a very different atmosphere and it must be the constant endeavour of this Association and of its members to drive them home by both words and deeds.

Meantime, however, I am glad to say there are signs that the horizon is not wholly black. I read recently a suggestion that the Wool Board was considering fostering research into the improvement of sheep husbandry with special reference to the prevention of disease. It

has always been to me a source of disappointment that our Marketing Boards have so far shown no great interest in the veterinary field and I can say, without fear of contradiction, that any such organisation which seeks to extend either the amount or application of our existing knowledge in this or allied spheres can count on the whole-hearted co-operation of this Association, and that we would bring to any such collaborative effort a knowledge and an experience that could well surprise even the most optimistic.

Veterinary Public Health

Another field in which as yet we have not been allowed to make our full contribution to the welfare of the community is, as you know, that of veterinary public health. We have, as you will have noticed in our Report, had further communication and discussion with various interested bodies with a view particularly to having extended to England and Wales the valuable collaborative arrangement between the Veterinary Profession and the Public Health Authorities, that has functioned successfully in Scotland for over 80 years, and I think it would be true to say that there has been an increasing appreciation in both official and medical circles of the essential soundness of our views and an increasing acknowledgement of the help the profession can give, although discussions on the exact method by which that can be achieved are still beset by political and other difficulties. One cannot help contrasting our position with that in other countries in Europe and in America, where for many years now this aspect of veterinary work has flourished in both civil and military circles and the Public Health Veterinarian is welcomed as an active and indeed invaluable collaborator by Executive and Sanitarian alike. Your Officers will, however, continue to be unremitting in their efforts and, with the changes that are foreshadowed in our slaughter-house system, it is not impossible that in meat inspection at least we may be given a more ample opportunity to play our rightful part. Our position in regard to milk control has also been unsatisfactory since 1938 when with the transfer of Local Authority veterinary staffs to the Central Government Service only their purely clinical duties in regard to milk went with them. In 1948, as some of you may remember when centralisation of the control of milk production was in the air, there was a promise in no less a document than a Government White Paper that the veterinary staff of the Animal Health Division would become responsible for the general supervision of the conditions under which milk was produced in England and Wales.

Like many such promises, however, it proved to be specious and when the arrangements for implementing the provisions of the Milk and Dairies Act of 1944 were eventually published it was found that what the then Permanent Secretary of the Ministry was euphemistically to term a " change of emphasis " had taken place. Instead of the promised central co-ordination by the Animal Health Division the present complicated organisation was set up whereby a superabundance of new officials appeared in a variety of organisations in the central authority. It is interesting now to recall that at that time the late Captain Barker, whose recent demise we all mourn, warned the Ministry that the new organisation would prove neither economical nor efficient but his forebodings fell on deaf ears. Just how correct he was is evidenced by the spate of recent criticisms from many quarters which has led the Ministry to have another look at their organisation. It is your Association's considered view that the Government's first thoughts in this matter were correct and that action to redeem those early promises to the public and to the profession by the transfer of milk control to the Animal Health Division would lead to economy in administration and increased efficiency in operation to the benefit of all concerned.

The Field of Therapeutics

There is one field of collaboration in which I am glad to be able to report continuous and encouraging progress, namely in the realm of veterinary therapeutics. This is an important field of our activities and by no means a simple one : Samuel Butler is credited with having said that the desire to take medicine differentiates man from the lower animals and I sometimes feel that the desire to administer it comes into the same category. However that may be, research in this field goes on apace with, I am glad to say, many of our veterinary colleagues playing a prominent part ; and I think it can safely be said that never before has there been such an activity in the preparation of new therapeutic substances and in evolving new formulae for the better protection of the nation's flocks and herds. But that activity inevitably raises problems in the evaluation, distribution and control of the many drugs—potent often for harm as well as for good—in the solution of which this Association is acutely interested, and I would like to take this opportunity of emphasising, in view of certain minor uninformed criticisms which have appeared from time to time in the Press that these problems are approached in no partisan spirit but with a view to securing the greatest good of the greatest number and that the reputation of the profession in that connection can stand the closest scrutiny. Less attention has been paid, I am afraid, by the critics to the much more vexed question of exploitation of the community by the sale of worthless remedies, a problem which is always with us in the field of animal as of human medicine and in connection with which our legislation is practically valueless. That problem is also under active consideration as is also the question of organising official trials of more orthodox therapeutic substances intended for veterinary use. I am pleased to be able to report that in this latter connection we have had the willing collaboration and support of the Agricultural Research Council and that we may confidently look forward to favourable developments in the not far distant future.

Animal Nurses

A matter of professional interest which has occupied our thoughts a good deal during this past year has been the scheme for the recruitment and training of animal nurses on which the Royal College had approached us for co-operation and advice. In this our constituent divisions have, as always, played an invaluable part and have considered at their meetings the pros and cons of this proposal as they would be likely to affect the rank and file of the profession and they have put forward, as usual, many constructive suggestions. By and large,

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Toxoplasmosis as a Complication of Canine Distemper

BY

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Introduction

SINCE the parasite was first discovered by Nicolle & Manceaux (1908) protozoa of the genus *Toxoplasma* have been found in various mammals, including man, and it is known that similar organisms may affect birds. The first report of canine toxoplasmosis was published by Mello (1910) who described a parasite discovered on autopsy of a young bitch. This dog had shown depression, anorexia, dysentery and pneumonia, while at *post-mortem* examination sero-sanguineous effusions, pneumonia, hepatitis and ulcerative enteritis were noted. The organisms occurred both intra- and extra-cellularly in the affected tissues. Another case of generalised infection in a dog came to the notice of Carini (1911) who succeeded in transmitting toxoplasms to pigeons subcutaneously and intra-peritoneally with fatal results. Although Carini regarded this strain as identical with *Toxoplasma cuniculi* of the rabbit the view was put forward by Yakimoff & Kohl-Yakimoff (1911), who had observed one case of canine toxoplasmosis among eight experimental dogs which died of distemper, that all toxoplasms were identical. At the present stage of knowledge it is generally considered impossible to differentiate between toxoplasms on either morphological or serological grounds. The parasite *T. gondii* is not host-specific (Sabin & Olitsky, 1937; Hagan & Bruner, 1951; Farrell, Docton, Chamberlain & Cole, 1952; Sabin, 1953; Frenkel, 1953). There appear, however, to be differences in virulence between strains. The widespread geographical distribution of canine toxoplasmosis was shown by the reports of Carini & Maciel (1913) from Brazil, of Blanc (1917) from Tunisia, of Fedorovitch (1916) from the Black Sea littoral and of Boez (1921) from France. By means of intravenous inoculation of peritoneal exudate from an infected mouse (Laveran, 1913) transmitted the infection to a dog, which subsequently developed fever, keratitis, injected conjunctival membranes and a mucopurulent nasal discharge, and the animal became emaciated.

More recently, sporadic cases of toxoplasmosis in dogs have been reported from diverse parts of Europe by Sjolte (1948), Fankhauser (1950; 1951), Cohrs (1951), Moller (1951), Cohrs & Carstensen (1952) and Flir (1954); from Australia by Wickham & Carne (1950); and from the United States by Olafson & Monlux (1942), Langham & Scholl (1949), Jasper (1951) and Moulton & Linton (1953). Other case reports are contained in the extensive Bibliography with Supplement by Eyles & Frenkel (1952; 1954). Cohrs (1951) gave clinical data obtained from naturally and experimentally infected dogs but concluded that there was not a clinical picture characteristic of toxoplasmosis and that many of its features were shared by other canine diseases, especially distemper. As a result of the study of 20 cases of natural infection Fankhauser (1952) divided toxoplasmosis into two forms, one associated with nervous and the other with mainly visceral signs. Fifteen of these cases showed nervous signs. Farrell *et al.* (1952) and Chamberlain *et al.* (1953) in America, transmitted canine, porcine and human strains of toxoplasm to dogs. Two outbreaks of disease with a high mortality rate studied by Cole *et al.* (1953) were attributed to toxoplasma infection, diagnosis being based on an unspecified number of dog and mouse inoculations, serological and allergic skin tests. The occurrence of toxoplasmosis in Great Britain was first announced by McIntyre, Trevan & Montgomerie (1948) in their account of canine encephalitis where they recorded two cases of infection in dogs. Bonser (1950), who found the protozoa in the ileal musculature of the dog with caecal intussusception, suggested that they may have stimulated irregular peristalsis and led to invagination of the viscus. Otten *et al.* (1950) regarded the clinical picture in canine toxoplasmosis mainly as one of chronic diarrhoea with nervous signs.

The existence of a distinct protozoan disease of dogs caused by an Encephalitozoon was suggested by Kantorowicz & Lewy (1923), Perdrau & Pugh (1930) and Peters & Yamagiwa (1936). Later, Pugh (1948) regarded the organism which he had reported jointly with Perdrau as a toxoplasm. Perrin (1943), as a result of his comparative studies in morphology and staining reactions, and Weinmann (1943; 1952) on an immunological basis, believed that encephalitozoa were not identical with toxoplasms. While this opinion has been accepted by some workers (Plowright, 1952; Plowright & Yeoman, 1952), other authors have expressed doubt as to the specificity of Encephalitozoon (Cohrs, 1951; Hagan & Bruner, 1951; Robinson, 1954).

Present Investigation

During a period of five years and in a series of 268 dogs showing clinical evidence of distemper or neurological disease possibly related to distemper, 16 cases of toxoplasmosis (5.9 per cent.) were observed. Three of these dogs have previously been referred to in a survey on canine distemper by Lauder *et al.* (1954). Five animals were submitted for *post-mortem* examination by general practitioners while the remaining eleven were examined by members of the Department of Medicine before coming to autopsy.

Clinical Findings

None of the 16 dogs in this series was tested to determine the presence of toxoplasms during life, nor was the existence of these parasites suspected until the animal came to autopsy. Each case has been selected entirely on the information supplied by a *post-mortem* examination, and the clinical data have been reviewed in the light of this knowledge.

CAMPBELL, R. S. F., MARTIN, W. B., GORDON, EDITH D.—TOXOPLASMOSIS AS A COMPLICATION OF CANINE DISTEMPER

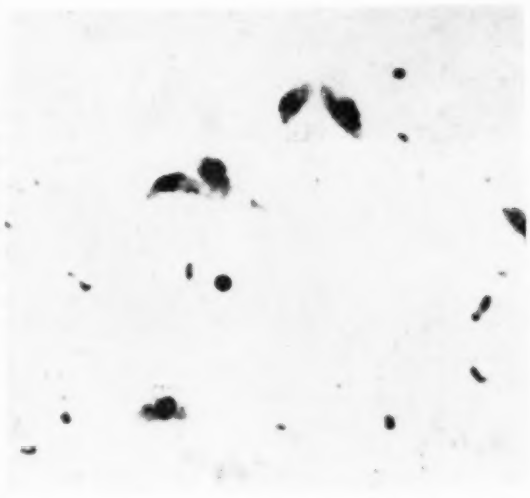

FIG. 1.—SMEAR FROM BRONCHIAL NODE: A group of extracellular toxoplasms. Their tapering or crescentic shape is apparent; nuclear and cytoplasmic structure are also shown. Jenner-Giemsa. × 1,500.

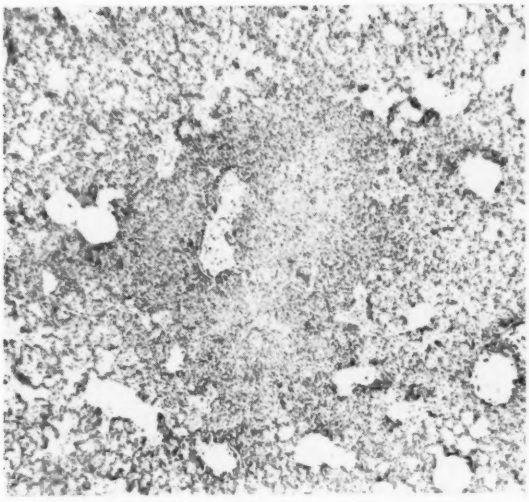

FIG. 2.—LUNG: Development of necrosis adjacent to a bronchiole. Alveoli generally show a light cellular infiltration and some oedema. Haemalum-eosin. × 35.

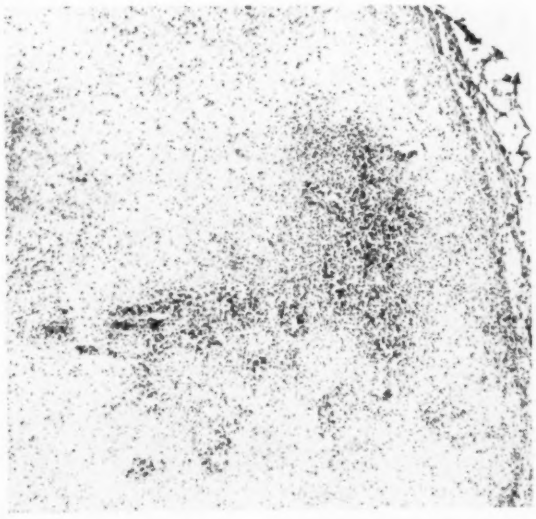

FIG. 3.—BRONCHIAL NODE: Extensive necrosis has left only small, isolated groups of cells. Haemalum-eosin. × 45.

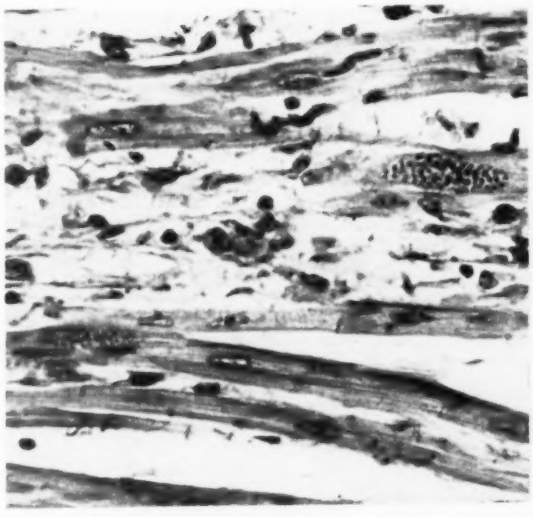

FIG. 4.—HEART: An area of myofibrillar degeneration. Intracellular groups of toxoplasms are present (right centre, upper; and left centre, lower). There is a slight lymphocytic and histiocytic reaction. Wright & Craighead's method, modified. × 500.

FIG. 5.—LIVER: Showing disseminated focal necrosis without specific lobular distribution. Giemsa. × 180.

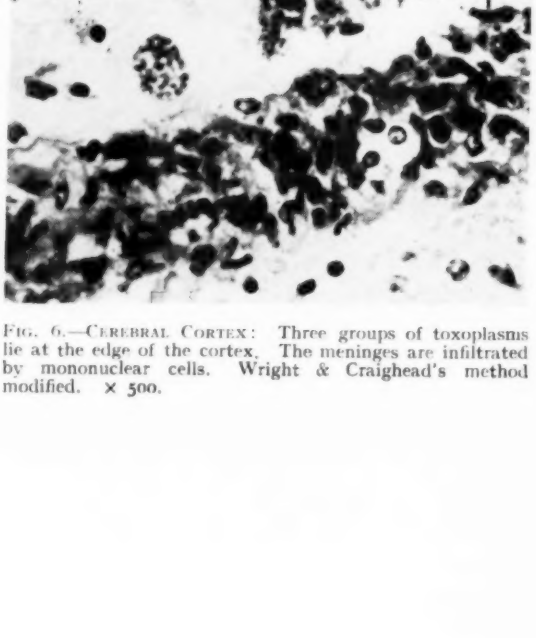

FIG. 6.—CEREBRAL CORTEX: Three groups of toxoplasms lie at the edge of the cortex. The meninges are infiltrated by mononuclear cells. Wright & Craighead's method modified. × 500.

Perusal of the case histories does not reveal any sign which might be regarded as indicative of toxoplasmosis. Neither was it possible specifically to correlate the anatomical distribution of the toxoplasms and the lesions produced by them with any clinical sign. However, from those cases with fuller histories the details given below have been abstracted.

Breed and Sex.—No significant sex or breed incidence was noted. While most of the cases encountered were collies or terriers, three Alsatians, one Labrador, two greyhounds and one pointer were affected.

Age.—Eleven dogs were less than six months of age and only one over a year.

Duration of Illness.—The period of illness varied from two to eight weeks except in the case of one dog which ailed for only a few days.

General Demeanour.—Most of the dogs were recorded as being for a variable period dull or very dull.

Alimentary System.—No specific changes were noted in the oral cavity in any case except one in which some degree of inflammation of the mucosa was present. Most cases showed marked loss of appetite which became worse as the illness progressed. Emesis occurred in five cases, in one of which the vomiting was quite severe at the start of the disease. Diarrhoea was obvious in 10 dogs, two of which showed frequent loose stools containing blood. Desire for water, though recorded as normal or reduced on several occasions, was never noted as increased.

Respiratory System.—Of five dogs having a cough only one was severely affected. In these five cases and in an additional four animals an increased respiratory rate, usually accompanied by harsh bronchovesicular sounds, was also recorded. Some evidence of purulent nasal discharge was present in five cases.

Ocular System.—Congestion of the conjunctivae was noted in eight cases, usually accompanied by serous discharge. A few dogs, however, showed a purulent conjunctivitis. Keratitis was not recorded in any case.

Temperature.—In all cases in which the temperatures were recorded, fever of over 103° F. was present at some time. The variations in temperature were as found in distemper by Lauder *et al.* (1954).

Epidermis.—Marked hyperkeratosis of the pads of the feet was observed macroscopically in four cases, and of the nose in one case. In one dog too an excessive generalised exfoliation of scales of the epidermis was noted, while in another otitis externa was a feature.

Lymphatic System.—No gross lymphadenitis of the subcutaneous nodes was present in any case.

Cardiac System.—Only in three animals were tachycardia and a full pulse recorded.

Nervous System.—Eleven cases showed signs of involvement of the nervous system. Epileptiform convulsions occurred in six cases. Chorea was present in two of these and in four other cases. Paraplegia of some degree was evident in five of the patients.

Treatment.—A variety of therapeutics was used, but none seemed to have noticeable effect on the duration, severity or outcome of the disease.

Post-mortem Findings

There was considerable variation in the lesions in the dogs of this series but in general they corresponded with the changes described in distemper by Lauder *et al.* (1954). Most frequent among these was pneumonia which could be detected macroscopically in 13 dogs usually in association with oedema. Pulmonary consolidation ranged from localised subpleural lesions to diffuse swelling and firmness of deeply congested lung. In several cases discrete grey or greyish-yellow foci of about 1 to 3 mm. in diameter occurred in the lungs and toxoplasms were later found histologically in four of these dogs. The presence of focal necrosis in the lungs and liver of case No. 15 aroused a suspicion of toxoplasmosis which was confirmed by films of lung, liver, bronchial lymph nodes and spleen stained by the Jenner-Giemsa method (Fig. 1). A serous or sero-haemorrhagic fluid was sometimes seen in the pleural and pericardial cavities.

The lymph nodes were commonly enlarged, congested and oedematous and while lymphadenitis could be recognised as a generalised phenomenon in a few dogs at autopsy, the change was usually only grossly appreciable in the thoracic nodes. Tonsillitis was sometimes present.

The gastro-intestinal tract was examined in several dogs, two of which showed duodenal ulceration.

Multiple greyish-yellow necrotic foci were noted in the liver of three animals (*cf.* histological findings). These lesions imparted a finely mottled appearance to the organ which was accentuated by irregular pallor due to degeneration and by focal congestion and haemorrhage. Slight oedematous thickening of the gall bladder wall was detected in one such case.

The spleen showed inconstant changes including congestion and enlargement with greyness due to cellular hyperplasia.

No specific lesions developed in the urinary or genital tracts. One dog suffered from congenital aplasia of the right kidney with compensatory hypertrophy of the left.

Degrees of hyperkeratosis were recognised in the epidermis of the pads in five of the 16 animals (*cf.* histological findings).

An excess of cerebrospinal fluid, sometimes of blood stained character, occurred in several dogs. The meningeal vessels were often congested. Lesions of the brain and cord were not seen macroscopically but these may have been obscured since the central nervous system was usually fixed in its entirety before slicing and the preparation of blocks for histological examination.

Histopathology

In most cases a microscopical examination was carried out on the lungs, heart, mediastinal lymph nodes, liver, spleen, kidneys, urinary bladder, pads, brain and spinal cord. The tonsils, pancreas, duodenum and mesenteric nodes also were studied in a few dogs.

After fixation in corrosive-formol and paraffin-embedding all tissues were stained by the haemalum-phloxin-tartrazine method. Other techniques employed were those of Wright & Craighead (modified by final

differentiation of the tissue in tartrazine-cellosolve), Gram-Twort for bacteria, phosphotungstic acid-haematoxylin for fibrin and Loyez' haematoxylin for myelin. Pads were processed by the double embedding method.

(a) Lesions ascribed to distemper infection.

The lesions seen histologically corresponded in the main with those of canine distemper (Lauder *et al.*, 1954). Bronchiolitis and peribronchiolitis with a mononuclear cell reaction were common and accompanied by pulmonary alveolar epithelialisation in 10 cases. Some degree of pulmonary oedema occurred in all cases. A dense polymorphonuclear infiltration of parts of the lungs in four dogs suggested concurrent bacterial infection. One case also showed a few adult nematodes (? *Filaroides* spp.) in a small bronchus. Disorganisation of the epidermis of the pads was detectable in nine out of 14 dogs in which they were studied and in a further three the stratum corneum alone was probably thickened. Encephalitis was observed in the 15 brains examined, though, as with the lesions just mentioned, the degree of affection varied widely, from a mild glial reaction concentrated in the cerebellum and pons to a disseminated focal, diffusing and perivascular inflammation at all levels of the brain. Meningitis was common but the spinal cord showed little reactive change in the cases studied. Degenerative myelin was a feature in the cerebellum of four dogs. Acidophilic cytoplasmic inclusion bodies which stained crimson with phloxin were found in all cases; their varied distribution is summarised in Table I. Intranuclear inclusion bodies of the type which develop in canine contagious hepatitis were not detected.

The number of toxoplasms also varied widely from case to case (Table II) being found in small numbers in a single organ in seven dogs but numerous and generalised in only four.

(b) Lesions ascribed to the action of toxoplasms.

The organisms in tissue smears and sections seen in the present series morphologically resembled *Toxoplasma* as described by Perrin (1943) and Cross (1947).

Lung.—Intra- and extracellular parasites as well as terminal colonies ("pseudocysts") were found in the lungs in seven cases where they involved epithelium, vascular endothelium and macrophages. The parasites were sometimes closely associated with focal fibrinoid necroses (Fig. 2) though seldom incorporated in these relatively acellular zones.

Lymph Nodes.—Necrotic lymphadenitis of the mediastinal group occurred in six dogs and in two of them the mesenterics were similarly involved. Lesions varied in size from small foci to almost total destruction of the node in which the pulp was reduced to a granular acidophilic mass containing cell debris (Fig. 3). Parasites were most abundant in the cellular zone bordering on the necrosis.

TABLE I

DISTRIBUTION AND INCIDENCE OF CYTOPLASMIC INCLUSION BODIES

Case number	Lung	Bronchial nodes	Spleen	Kidney	Brain
1	+	+	—	—	+
2	—	—	—	—	++
3	++	+++	+	+++	—
4	—	+	—	—	—
5	+++	+	O	+	++
6	++	+	+	+	++
7	+	+	—	—	+
8	+++	+++	+++	+++	++
9	+	—	—	—	+
10	++	—	—	—	++
11	+	—	—	—	—
12	+	—	—	—	—
13	+++	—	+	+	+
14	++	+	O	O	+
15	+++	+++	+	+++	++
16	—	—	—	—	++

+ to +++ Relative concentration of inclusion bodies.
— Inclusions not found.
O Tissue not examined.

TABLE II

DISTRIBUTION AND INCIDENCE OF TOXOPLASMS

Case number	Lung	Heart	Lymph nodes	Liver	Spleen	Kidney	Bladder	Brain
1	—	O	O	—	O	+	O	+
2	—	O	O	—	O	—	O	+
3	—	—	+M	—	—	—	O	—
4	+	+++	+M	+++	+	—	++	O
5	—	—	—	—	O	—	O	+S
6	—	+	—	—	—	—	—	+S
7	—	—	—	—	—	—	—	+S
8	++	—	+	+	+	+	+	+++
9	+	+	—	—	—	—	—	+++
10	—	+S	—	—	—	—	—	—
11	—	+	—	—	—	—	—	—
12	+++	+	+	++	+	+	+	+++
13	+	+	—	—	—	—	—	—
14	++	+	++M	—	O	O	O	—
15	+	—	+++M	++	+	—	—	++
16	—	—	—	—	—	—	O	+

+ to +++ Relative concentration of toxoplasms.
— Toxoplasms not found.
O Tissue not examined.
S Single parasitic focus found.
M Mediastinal nodes only.

Heart.—Toxoplasms appear to have an affinity for all forms of musculature. They were found in eight of 14 hearts examined in this series, most of the organisms being intracellular and occurring in groups of up to 40 or more in myofibrils (Fig. 4). In one dog (No. 10), however, only one group was encountered in the block of tissue studied, without other signs of pathological change in or around the affected muscle. The remaining cases showed multiple groups of free and intracellular toxoplasms and grades of myofibrillar degeneration and necrosis associated with a lymphocytic and histiocytic reaction.

Duodenum.—The few examples of duodenal ulceration studied proved to be lytic lesions with little evidence of inflammation and no toxoplasms.

Liver.—Disseminated focal necroses of irregular distribution were seen in eight dogs and sometimes reached very severe proportions (Fig. 5). Many surviving hepatic cells showed regressive changes. Focal haemorrhage and a cellular reaction (largely mononuclear) also occurred. In four cases toxoplasms were detected in large mononuclear cells and hepatic cells. Within the latter, parasites were sometimes surrounded by a "membrane" which gave a positive reaction by the periodic acid-Schiff method.

Pancreas.—Protozoa were found in three of six dogs showing focal necrotic pancreatitis.

Spleen.—Usually there was a reticulum cell and macrophage reaction, accompanied sometimes by a fall in the lymphocytic content and degenerative changes in many other cells of that type. To some extent these changes are attributable to distemper virus infection. Toxoplasms were seen in four cases, occurring freely or within macrophages and trabecular muscle.

Kidneys.—Focal tubular necrosis and toxoplasms were observed in three dogs, the degree of tissue destruction being much less severe than in the affected lungs, liver and nodes. Few toxoplasms could be seen and otherwise the renal parenchyma showed only mild or moderate regressive changes.

Urinary bladder.—The predilection of toxoplasms for muscle was borne out further by the presence of parasites in the wall of the bladder of three dogs, though only in small numbers in two of them.

Central nervous system.— Toxoplasms occurred in the brain of 10 out of 15 brains examined, the infection being heavy in four, very slight in four and of an intermediate grade of involvement in the remaining two. The parasites which were present as free and intracellular forms within glia and neurones, included some incorporated in "pseudocysts." Although no reaction was elicited by some toxoplasms, especially when in the form of pseudocysts, inflammatory reactions were usually found. Focal gliosis of microglia and astrocytes developed, with the support of mononuclear haemic cells in the severer lesions, and focal necrosis of the nervous tissue was common. Blood vessels were often involved when they showed endothelial swelling, adventitial cell proliferation and some perivascular infiltration by lymphocytes and even plasma cells. In one early encephalitic case, numerous petechiae had occurred. Although lesions were found in most parts of the brain in the heaviest infections, the cerebral cortex was most commonly affected. In one dog, toxoplasms occurred in very large numbers in the leptomeninges and subpial tissue in one area of the occipital cortex (Fig. 6).

Discussion

It will be seen from the clinical details reported that, even in retrospect, it does not seem possible to select from any case in this series signs which could be regarded as specific for toxoplasma infection during life. It is emphasised, however, that all cases encountered, as far as it is possible to judge on histological grounds, appeared to be complicated by intercurrent distemper, so that the latter infection may sometimes have masked the signs of toxoplasmosis.

A diagnosis of distemper in the 16 dogs was based partly on clinical signs but largely upon histological changes, especially bronchiolitis, alveolar epithelialisation, hyperkeratosis of the pads, encephalitic changes (apart from those with which toxoplasms were intimately associated), and the presence of inclusion bodies. The incidence and severity of "viral" lesions varied from case to case and the cytoplasmic inclusions, though constantly present, were scanty in six dogs but more numerous or even profuse in the majority of tissues in other cases. The relationship between duration of illness and development of tissue changes has been discussed by Lauder *et al.* (1954). Failure to demonstrate inclusion bodies, as reported by Fankhauser (1952) in his series of cases of "hard pad disease," may have been due to the histological methods used (Lauder *et al.* 1954) so that it is not unlikely that his four cases of toxoplasmosis with hyperkeratosis represented the dual infection described here. Fankhauser (1952) also divided canine toxoplasmosis into two clinical syndromes, one associated with visceral abnormalities such as gastro-enteritis and pneumonia, the other based upon nervous signs but it seems premature to make such a classification until the relationship between distemper and the protozoan infection is more fully understood. The incidence of latent or progressive toxoplasmosis in dogs unaffected by distemper or other infections remains uncertain, but we have so far been unable to identify a case of "pure" canine toxoplasmosis, or of toxoplasmosis associated with any infection other than distemper.

The association of distemper with toxoplasmosis in the same host has been noted by several writers (Yakimoff & Kohl-Yakimoff, 1911; Nicolau & Kopciowska, 1935; Moller, 1951; Beinfet, 1953; Lauder *et al.*, 1954). Moller suggested that concurrent distemper infection may predispose to fatal toxoplasmosis. Fankhauser (1952) also considered that an association might exist between the diseases. The pathogenesis of the dual infection has still to be elucidated. Only six dogs in the present series showed what could be regarded as severe or extensive toxoplasmosis. The other nine had few parasites detected in them and these, in some cases, were unassociated with regressive or inflammatory tissue changes, so that the protozoa could easily be overlooked. The presence in some tissues, *e.g.*, heart and brain, of non-progressive foci of infection suggests that *Toxoplasma* may exist in biological equilibrium with the host, becoming pathogenic only when the resistance of the latter is lowered

by other factors such as additional infection. Such was the view stated by Moller (1951) and Fankhauser (1952). Sabin (1953) suggested that toxoplasmosis may be an example of an almost perfect host-parasite relationship; Weinmann (1952) has reviewed the evidence of asymptomatic toxoplasmosis in man. In a series of 24 dogs showing nervous disease studied by Otten *et al.* (1952) the sera of which contained antibodies to *Toxoplasma* according to the dye test of Sabin & Feldman (1948) eight also gave a positive reaction to the complement-fixation test for distemper. Cole *et al.* (1953) found that 76 out of 1,944 dogs reacted to the toxoplasmin skin test (Frenkel, 1948) and of the positive cases 16 showed serum titres ranging from 1 : 16 to 1 : 1,600 when examined by the dye test. No *Toxoplasma* antibody was found by these authors in the sera of 387 healthy dogs or in the sera of 125 dogs representing many canine diseases other than toxoplasmosis. Dogs with experimentally induced toxoplasmosis regularly developed antibody. Miller & Feldman (1953) demonstrated dye-test titres of over 1 : 16 in the sera of 30 out of 51 stray dogs and of 15 stray cats in a series of 44. Confirmatory pathological evidence of the frequency of canine toxoplasmosis was also given by the work of Fankhauser (1952) who compiled a series of 20 cases out of 350 dogs with nervous disease, mostly encephalitic in form.

In the absence of any reliable clinical sign, the diagnosis of toxoplasmosis depends meantime on more specialised methods such as the toxoplasmin skin test or, in the field of serology, on the complement-fixation or the cytoplasm-modifying (dye) test. The latter has already been applied to the dog on a limited scale (see above). From the present series of cases, focal necroses of the liver and lung appeared to be the most suggestive autopsical signs, leading in one dog to a rapid diagnosis by the examination of stained tissue smears. Otherwise a comprehensive histological study may be used in reaching a diagnosis, and special consideration should be given to the possible co-existence of distemper.

Increasing attention is being paid to the public health aspects of toxoplasmosis (Winsser, 1949; Sumner, 1952; Campbell, 1953; Cole *et al.*, 1953; Miller & Feldman, 1953; Pay, 1953). Although many people may exhibit a positive serological or skin reaction (Sabin, 1941), few develop clinical disease. Should they do so, however, the issue may be serious both in the adult and in children. Campbell (1953) reviewed the current knowledge of human toxoplasmosis and suggested that most human cases followed infection from animals such as the dog, rabbit, rat or even birds but conclusive evidence has still to be presented for this view despite the surveys of Otten *et al.* (1950) and Fankhauser (1952). Nevertheless, support for such a sequence of transmission arose from the work of Beverley *et al.* (1954) who, by employing the dye test to a sample of adult population, showed significantly higher titres in the sera of veterinary surgeons and abattoir workers. Still higher were the reactions of people handling rabbits and, in particular, of rabbit trappers. The work of Cole *et al.* (1953) was strongly suggestive of transmission from dog to the human being in that three people diagnosed as suffering from toxoplasmosis on clinical and serological grounds (and in one of them by isolation of the parasite) had been in contact with proved canine cases. Beckett & Flynn (1953) suspected that transmission of *Toxoplasma* from a dog to one of two cases of congenital infection in infants.

The present work would indicate that the incidence of canine toxoplasmosis is comparatively high. Further clinical, pathological and serological investigations are deemed necessary to measure its extent and distribution, its seemingly frequent association with distemper and its rôle in human infection.

Summary

(1) A clinical and pathological account is given of 16 cases of canine toxoplasmosis, all of which were apparently co-existent with distemper infection.

(2) It has not been found possible to identify clinical signs which were pathognomonic for the protozoan infection in the present series.

(3) The gross and microscopical changes due to the toxoplasms are described and compared with the concurrent lesions of distemper.

(4) The pathological characteristics of toxoplasmosis in the dog are discussed.

(5) The significance of the protozoa in public health is emphasised.

Acknowledgments.—We wish to thank Messrs. Alex. Thomson, R. D. Maguire, D. Boyce, MS.R.C.V.S., and Miss D. Campbell, M.R.C.V.S., for permission to include cases in this series. Much help in translation and in the preparation of the paper has been received from colleagues. For extensive technical work we are indebted to Mr. W. Penny, F.I.M.L.T., and to Mr. W. Finnie who prepared the photomicrographs.

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(Continued on page 716, col. 1)

A Dermatitis of Sheep Associated with an Organism of the Genus *Actinomyces*

BY

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AND

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DURING the winter of 1953-54 an outbreak of an unusual skin condition was encountered in a flock of Blackface hill sheep in Argyll. The disease reappeared during the following winter, and at the time of writing (March, 1955), a number of animals still show active lesions. The stock on the farm consists of some 3,000 breeding ewes, 100 tups, and 1,100 hoggs. At the time of the initial outbreak, the hoggs were wintering away. Except during the mating season the tups are kept in fields on low ground.

The 1953-54 Outbreak

The tups were released to the hill on November 24th and gathered again on December 26th. From then on many showed a progressive loss of condition and a number were reluctant to approach the feed troughs. By the middle of January it became obvious that lesions which had been seen on the heads of a number of tups, and dismissed as wounds caused by fighting, were those of an apparently contagious skin disease.

One of us (C.C.B.) first visited the farm on February 13th. By that date all the tups were affected, and lesions had then been observed on ewes of one hirsel.

Examination

Lesions were generally confined to the haired parts of the head, and the scrotal sac in the case of the tups. One tup only was affected on the legs, lesions extending from the coronets to above the knees and hocks of all four legs. It was impossible to gain a clear picture of the development of the lesions on the tups, as, by the middle of February, all of them had been affected for some weeks and had been under treatment with an oily dressing. It was, however, obvious that they were much more severely affected than the ewes.

The Tups. The site most commonly affected was the forehead, but lesions were seen on all the haired parts of the head and face, including the ears. These lesions were generally granulating purulent sores, surmounted by horny, heaped up scabs. The size of such scabs varied up to 3 cm. or more in diameter. The ears of many showed a coalescence of lesions affecting almost the whole surface. At the time of the initial examination many were already showing large, hairless healed areas with a central scab covering an area of granulation. The one tup whose legs were affected showed irregular bare patches with white flaky crusts 0.5 cm. or more in diameter. Residual hair with crust adhering could be plucked out easily. There were no granulations on the legs. Many tups were affected on the scrotum, on which the entire surface of the lower half and curvature of the sac was usually affected. Relatively early lesions were seen in one case only, the skin being studded with flat pustules 3 to 4 mm. in diameter. The later stages were characteristic, the affected area of the scrotum being covered with closely packed, roughly hemispherical scabs 3 to 6 mm. in diameter. Each scab was formed around the staple of a tuft of hair, and the whole could easily be flaked off revealing a shiny, healed surface on the skin beneath. These scabs were dry and of a somewhat crumbly consistence. By the end of March the active lesions were no longer visible, and by May the hair of the affected areas had reappeared.

The Ewes. Recently affected ewes could be picked out at several yards distance by a "staring" of the hair over the nasal bones. This was the primary and only site of infection in the ewes. The affected area was generally about 4 to 7 cm. in diameter. Examination in some cases revealed only a scurfiness of the skin. The hair could be easily plucked, usually with some small flat crusts adhering. In others a few isolated small pustules, 2 to 3 mm. in diameter were apparent. These, on rupture, left a small flaky scab. The affected areas were denuded of hair to a varying extent. The lesions in the ewes were generally mild. The remoteness of the farm rendered it impossible to follow individual cases through, but by the end of March the outbreak appeared to have died out. The owner estimated that about 100 ewes had been affected. These cases were sporadic and, before the end of the outbreak, had appeared at widely divergent points on this 7,000 acre farm.

The 1954-55 Outbreak

At the beginning of January, 1955, the disease reappeared amongst the tups, although no active lesions had been seen when they were released to the hill in November. Most of them were affected, although the lesions were much less severe than before and resembled those found on the ewes in 1954. One of us (C.C.B.) had the opportunity of

examining two of these animals on January 26th (others were unfortunately not available for examination). Both had been severely affected during the previous winter. Traces left were, on one, a star-shaped keratinous scar 2.5 cm. in diameter on the crest of the nose; the other had a very considerable cutaneous thickening about 3 cm. in diameter above the nostrils. The skin of the ears of both was obviously thickened. The active lesions were again present on the head, and on one an area several inches in diameter on and around the right knee joint was also affected. One showed lesions along a strip about 5 cm. wide from nose to forehead; on the other they were more irregular, but also affected the face and forehead. The affected areas were simply denuded of hair giving the skin a somewhat "oily" appearance and there was a sharp demarcation from the surrounding healthy skin. Along this line were thin flat crusts. The scrotal lesions were advanced, and were exactly similar to those encountered during the previous winter.

Only a few sporadic cases were observed amongst the ewe stock.

No evidence of pruritis was seen. The granulating type of lesion seen on the tups was, however, obviously painful and the shyness of these animals to approach the feed troughs was regarded as being due to reluctance to risk contact with a neighbour's horn.

Origin of the Infection

At first it was thought probable that the disease had been introduced by one or more of 24 tups purchased during October, 1953. However, early in March, 1954, when inspecting the batch of hoggs wintering in the Isle of Bute, the owner observed two typical cases of the disease, the lesions being similar to those of the ewes. These hoggs had left the main flock prior to the introduction of the purchased tups. Before this no sheep had been brought on the farm since March, 1953, when the hoggs had returned from wintering. It has not, therefore, been possible to trace the source of the infection.

Transmission of the Disease and Isolation of the Causal Organism

The material examined in the laboratory consisted of a number of small crusts each about 3 mm. in diameter, removed from lesions on affected sheep in February, 1954. These were in two separate lots, A and B. Both lots were treated similarly, as will be described, except that lot B was first desiccated for seven days *in vacuo* over calcium chloride.

Both lots of crust were finely ground, suspended in small amounts of broth and applied to the plucked and scarified flanks of three normal Cheviot hoggs and two orf-immune hoggs. A control suspension of orf crusts was also applied to one of the normal hoggs and to both orf-immune hoggs.

Experimental lesions

Twenty-four hours after inoculation the plucked areas on all the hoggs showed generalised eruptions of small yellow pustules 1 to 2 mm. in diameter which were obviously associated with the follicles from which the wool had been recently plucked, rather than with the lines of scarification. Individual pustules showed a surrounding zone of erythema.

The pustules enlarged and became confluent, forming a moist yellow sheet which thickened and dried to become a honey-coloured crust by the fourth day. Removal at this stage required considerable traction and exposed bleeding points on the raw surface below. Separation of this crust commenced at 10 days and was complete by 14 days, revealing intact skin with a somewhat flaky surface.

The normal hogg gave a typical reaction to the control inoculum of orf virus, while the immune hoggs showed no response, indicating that orf virus was not present in the original crusts.

The experimental lesions were identical with those produced by crusts from cases of strawberry footrot in sheep and described by Nisbet (1954), who isolated from them an organism of the genus *Actinomyces*. An examination was therefore made to determine whether a similar organism could be isolated in this instance.

Smears of the pus from 24-hour lesions on the experimental sheep showed the presence of gram-positive branching filaments, some exhibiting barred or beaded staining, and many gram-positive coccal forms.

Isolation of the organism

Broth suspensions of the original crusts, and pus from the experimental lesions were streaked on ox-blood agar and nutrient agar plates. After 24 hours incubation aerobically at 37° C., all the plates showed a growth of staphylococci, α β haemolytic on blood agar, more profuse on the plates made from lot A crusts. Closer examination of the nutrient agar plates under the 2/3 objective of the microscope showed that on all there was also a slight growth of the tiny filamentous actinomycotic colony described by Nisbet (1954). This tiny colony was subcultivated from the plates inoculated with lot B crust, which contained fewer staphylococcal colonies, and was obtained in pure culture.

After 48 hours incubation at 37° C. aerobically a growth of tiny heaped-up yellow-pigmented colonies was obtained on surface-streaked ox-blood agar plates. The colonies were surrounded by a zone of β-haemolysis.

Stained preparations showed gram-positive branching filaments from which the coccal forms arose by division.

The organism was aerobic and facultatively anaerobic.

Glucose and laevulose were fermented in 24 hours, glycerin and maltose after five days, all with production of acid but no gas.

Cultures applied to the plucked and scarified flanks of Cheviot hoggs produced pustular lesions identical to those resulting from inoculation of the original crusts. The organism was also pathogenic for the guinea-pig and rabbit when inoculated on the shaved and scarified skin, the resulting lesions being very

similar in appearance and development to those on the experimental sheep.

No demonstrable immunity could be produced in the sheep by repeated infection of the skin.

Identification

In all respects this organism was found to be identical with that isolated from crusts obtained from cases of strawberry foot-rot in sheep in Aberdeenshire (Nisbet, 1954), and classified in the genus *Actinomyces*. Similar micro-organisms have been observed and reported previously from cases of mycotic dermatitis (lumpy wool disease) in sheep by Bull (1929) and Seddon (1929) in Australia and Steyn (1931) in South Africa. The organism isolated in this instance is identical in morphology, cultural characteristics and pathogenicity with the organism isolated by Bull, and named by him *Actinomyces dermatonomus*.

Discussion

From a search of the literature this would appear to be the first instance of the isolation of an organism of the genus *Actinomyces* from a field outbreak of dermatitis in sheep in Great Britain, and apart from the description by Nisbet (1954) such organisms have not previously been reported in association with sheep dermatitis in this country.

In its clinical manifestations the disease known in Australia and South Africa as mycotic dermatitis or "lumpy wool" differs considerably from the outbreak here described. The typical lesion of "lumpy wool" is associated with an exudation of serofibrinous fluid which dries, matting the wool fibres together and forming a dense pyramid-shaped mass. Bull described the condition as affecting mainly the woolled upper parts of the body, although he quoted an exceptional case which was affected about the head and ears. In no instance did we observe lesions other than on the haired parts.

In Australia young animals appear more susceptible to infection than older sheep. In the present outbreak there was no special age incidence, sheep from nine months to six years old being affected, and reinfection occurring a year later in all age groups.

On the other hand, Bull's description of the experimental lesions agrees closely with that given above, and it is possible that the breed of sheep (Merino) and the climate are factors determining the distribution and appearance of the lesions in the Australian disease. Bull also stated that moisture of the skin and wool facilitated experimental infection and that the natural disease was most prevalent when weather conditions were wet, and in that respect it is of interest to note that rainfall is extremely high in Argyllshire during the autumn and winter months. During the two periods of four months, commencing November 1st, 1953, and November 1st, 1954, 35 and 30 inches of rain, respectively, were recorded in the area of the outbreak.

Another Australian report (Seddon, 1953), describes the disease as appearing on haired parts of the skin, when the lesions occur as flat amber-coloured scabs. This appears to be similar to the ewe cases encountered by us. The same report describes lesions in lambs two to four months old on the haired parts of the body only. In the 1953-54 outbreak, described, the disease had disappeared prior to the lambing season.

A further point of interest is that the clinical appearance and distribution of the lesions in this outbreak bore no resemblance to the description given by Harriss (1948) of strawberry foot-rot, which he said was an ulcerative dermatitis affecting the skin of the legs between the coronet and knee or hock.

From the purely bacteriological aspect it should perhaps be emphasised that the isolation of the organism in pure culture is not usually simple on account of the heavy growth of associated staphylococci and the leathery and adherent nature of the actinomycotic colonies, whose small size renders them very liable to be overlooked in primary culture unless special search is made using the 2/3 objective of the microscope. It is probable that the desiccation of one sample of the crusts for seven days markedly reduced the numbers of staphylococci and thus enabled the actinomycotic colony to be more easily subcultivated. Nisbet (1954, 1955), noted that on plate cultures growth of the organism is inhibited by haemolytic staphylococci.

Summary

1. An account is given of an outbreak of dermatitis in a flock of Blackface sheep on a hill farm in Argyllshire.
2. The lesions produced on experimental sheep with material from this outbreak are described, and the isolation from these lesions and from the original material of an organism resembling *Actinomyces dermatonomus* is recorded.

Acknowledgments—We are grateful to Mr. R. W. Chesters, M.R.C.V.S., and Mr. G. G. Rennie, M.R.C.V.S., for bringing this outbreak to our notice.

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Since this paper was prepared for publication Thompson (1954) has recorded the isolation of a similar organism from material obtained from crusts of strawberry foot-rot (origin unspecified). This author provisionally classifies the organism as a *Rhizobium* species.

THOMPSON, R. E. M. (1954). *J. Path. Bact.* **68.** 445.

Observations on the Incidence of *Otodectes cynotis* (Hering) on Dogs and Cats in the London Area

BY

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REFERENCES in the literature on the incidence of *Otodectes cynotis* on dogs and cats are surprisingly scarce. Kauffmann & Frost (1949) mention that 56 per cent. of live dogs were found to have otodectic mange and both Woodrow (1953) and Jennings (1953) also lay stress on the importance of mange in this host. Stafford (1935) states that in the U.S.A. the mite "perhaps affects 75 per cent. of all cats, especially the long-haired varieties, and is without doubt the major cause of spasmodic fits in cats." Schultz (1938) also mentions that in the U.S.A. "fully 75 per cent. of all cats, especially the long-haired varieties, are affected" with this mite which "may infest one or both ears of the animal." Otten (1952) examined the ears of 257 cats from the harbour area of Hamburg and found 117 positive for otodectic mange, 43 being very heavy and 74 light infestations. He expresses the view that parasitic otitis of a single ear is rare in cats. Mohr's observations (1951) suggest an age immunity.

Because there appear to be no data on the incidence of the mite on animals examined *post mortem*, it was decided to keep records of the occurrence of the parasite on dog and cat carcases which became available for examination during 1952, 1953 and 1954. The animals examined were unselected, with no previous record of case history. They were obtained from the Beaumont Animal Hospital, Royal Veterinary College, London, and nearly all came from the surrounding North-Western and bordering postal regions of London and were disposed of for a variety of reasons. By making use of dead animals it was possible to examine a random sample of dogs and cats rather than selected cases of suspected acariasis.

Each animal was examined immediately after destruction or, if this was impossible, it was placed in cold storage (temperature 1° C. minimum to 3° C. maximum) and examined at the earliest opportunity. The method of examining the ear was invariable and consisted of incising the ear to expose the external auditory meatus as far as the membrana tympani. Notes on the condition of the ear were then made and this was followed by a thorough scraping of the integument with a sharp scalpel blade. Sufficient 5 per cent. cold potassium hydroxide solution to cover the collected material was added to a small Petri-dish containing the scrapings and the mixture allowed to soak for 12 hours. If, after this period, the mixture was found too thick the soft detritus was broken up and further diluted until of an even suspension, and this was examined with a binocular dissecting microscope for the presence of mites. If no mites were seen, the detritus was washed free of the potassium hydroxide by repeated centrifuging and decanting. The concentrate was then examined by the technique normally employed for examining faecal material for helminth eggs by using concentrated sugar solution and centrifuging. A final examination of the heavy material at the base of the centrifuge tube was made after decanting the supernatant sugar solution. If, after these three

(*Continued from page 712*)

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examinations, no mites were seen the material was considered to be negative for the presence of *Otodectes*.

TABLE I
DOGS

	Number examined ♂	Number examined ♀	Number infested ♂	Number infested ♀	Total examined	Total infested
1952						
Jan.—Mar.	11	11	1	—	22	1
Apr.—June	37	25	2	—	62	2
July—Sept.	17	5	—	—	22	—
Oct.—Dec.	8	7	—	—	15	—
	73	48	3	—	121	3
1953						
Jan.—Mar.	21	13	2	—	34	2
Apr.—June	25	12	—	—	37	—
July—Sept.	7	5	—	2	12	2
Oct.—Dec.	41	21	1	—	62	1
	94	51	3	2	145	5
1954						
Jan.—Mar.	37	31	1	—	68	1
Apr.—June	42	28	5	1	70	6
July—Sept.	43	41	—	1	84	1
Oct.—Dec.	39	27	—	—	66	—
	161	127	6	2	288	8

TABLE II
CATS

	Number examined ♂	Number examined ♀	Number infested ♂	Number infested ♀	Total examined	Total infested
1952						
Jan.—Mar.	11	9	4	5	20	9
Apr.—June	26	29	7	1	55	8
July—Sept.	19	13	6	2	32	8
Oct.—Dec.	2	6	—	2	8	2
	58	57	17	10	115	27
1953						
Jan.—Mar.	11	13	1	2	24	3
Apr.—June	16	26	3	6	42	9
July—Sept.	14	3	3	1	17	4
Oct.—Dec.	15	26	2	7	41	9
	56	68	9	16	124	25
1954						
Jan.—Mar.	36	21	10	7	57	17
Apr.—June	43	38	16	11	81	27
July—Sept.	43	37	5	13	80	18
Oct.—Dec.	31	25	13	3	56	16
	153	121	44	34	274	78

Tables I and II show the results of examining 554 dogs and 513 cats respectively over a three-year period. As previously mentioned, notes on the condition of the ear were made at the examination *post mortem*. The terms "clean," "fairly clean," "fairly dirty" or "dirty" were used to describe the ear condition. An ear containing cerumen which was in excess and was white in character was regarded as "fairly clean," whereas one containing wax that was brown or black, but not in sufficient quantity to be classed as "dirty," was regarded as "fairly dirty." Table III shows the correlation between the clinical condition of the ear seen at examination *post mortem* and the numbers of dogs and cats free from or infested by mites.

TABLE III

	DOGS				CATS			
	Male		Female		Male		Female	
	Mites Present	Mites Absent	Mites Present	Mites Absent	Mites Present	Mites Absent	Mites Present	Mites Absent
Clean	—	254	—	172	2	160	—	161
Fairly clean	1	23	—	22	4	12	4	11
Fairly dirty	4	11	—	14	14	11	3	18
Dirty	7	28	4	14	50	14	42	7
	12	316	4	222	70	197	49	197

The numbers and breeds of affected dogs were three spaniels, two Yorkshire terriers, one Pekinese, one griffon de Bruxelles, one rough-haired fox-terrier, one smooth-haired fox-terrier, one Scottish terrier and six mongrel types. Two of the mongrel types showed unilateral infection of the right ear. Six cats showed unilateral infection, five of the right ear and one of the left ear.

By making use of the cadaver it was possible to make a more thorough search for mites than by examining cotton swabs from the live animal or by using the auriscope on it, even although the technique used was relatively simple.

During 1954 a technique was adopted to give a rapid assessment of the mite population on affected dogs and cats and consisted simply in counting under a binocular dissecting microscope within 30 seconds, the mites seen after the ear scrapings had been left in the cold potassium hydroxide solution and before they had been submitted to centrifuging. With dogs, this was found in several instances inadequate in demonstrating mites, since they were found on later examination. With cats, however, this counting technique was an effective guide to the intensity of infestation. The technique indicated that, in most dogs, the numbers of mites were usually few and not easy to demonstrate, whereas in cats the mites were generally obvious and in reasonable numbers.

The percentages of dogs found infested during 1952, 1953 and 1954 were 2.5, 3.5 and 2.8, and of cats 23.5, 20.2 and 28.4 respectively. These findings tend to confirm the opinion of some investigators that otodectic mange is commoner amongst cats than dogs or that it is more easily recognised in the former host because of the greater numbers of mites present. No distinct age immunity was noticed in the present study.

Acknowledgment.—It is a pleasure to acknowledge the co-operation of Mr. G. C. Knight, F.R.C.V.S., who kindly placed the dog and cat carcases at my disposal.

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The Annual Banquet

THE Association's annual Banquet was held in the Sir William Whitla Hall, Queen's University, on September 7th. A very large and distinguished company sat down, including guests from the Government of Northern Ireland, the City, in the persons of the Lord Mayor, the Lady Mayoress and others, the judiciary as represented by the Lord Chief Justice, and the University. Delegates from many parts of the world were present also, while the host Division of the Congress was represented by its President, Professor Lamont, its officers, and a large contingent of members.

After the loyal toast had been drunk, Mr. Edward Wilkinson, who had the previous day been elected President of the Association for 1955–56, proposed the toast of the Government of Northern Ireland and the City of Belfast. In the course of his remarks Mr. Wilkinson said :—

"It is my great privilege and pleasure to propose this toast. The British Veterinary Association is very much in the debt both of the City and of the Government. We were most happy to accept your hospitality, my Lord Mayor, at the civic reception on Monday evening. We hope that you will be able to join us again before our Congress ends. We also wish to thank the Government for the reception which we were accorded at Stormont yesterday afternoon. These kindly gatherings will remain in our memories for a very long time.

"The Lord Mayor is a man of wide interests. In his leisure hours he finds time, as he told us at our opening meeting, to be President of the North of Ireland Zoological Society and that is, surely, something which interests all of us. He was, prior to becoming Lord Mayor, a Member of Parliament for the Woodvale division of this city. We must also thank him, as Chairman of the Transport Committee, for the kind thought which allows us the free use of the city transport system.

"The Corporation which he leads is one which has shown a real understanding of the uses to which the veterinary profession can be put. It is noteworthy that in this city the meat inspection services operate directly under the City veterinarian, our very good friend Mr. Alex. McLean, who is in very truth the responsible authority. Might one dare to invite those in authority in England and Wales to take full note of the arrangements here in Belfast ? Both Scotland and Belfast seem to be of like mind on this matter. I wonder, why must certain other parts of these Islands find it so difficult to understand the obvious ?

"It is, I believe, true to say that in relation to the size of this province, its veterinary set-up is second to none in the world. The quality of its practising veterinary surgeons, of the State veterinary service, and of its veterinary research division are outstanding in relation to the size of the province which they serve. There are slightly over 200 veterinary surgeons in Northern Ireland. They are responsible in a veterinary sense for the well-being of an industry which has an annual value of £96 million—substantially more than shipbuilding, the linen, rayon and aircraft industries put together. To a large extent this veterinary set-up is the work of the Government of Northern Ireland.

"I believe that mutual understanding and co-operation between the State veterinarian and the practising veterinary surgeon in Northern Ireland is on a most satisfactory basis. This is not necessarily an easy thing to bring about. It is, therefore, most encouraging that the welfare of the individual as well as that of the State has been safeguarded. In this way the community at large will benefit.

"Of the £79 million of livestock and livestock products, pigs bring in no less than £27 million a year. It is not, therefore, surprising that Northern Ireland has done a great deal of pioneer work in the husbandry, humane housing and disease control of this most useful animal. Much, however, still remains to be done and we look forward with confidence to the elucidation of several conditions which still baffle the veterinary surgeon both here and elsewhere in the world.

"Your State veterinary service carries out valuable duties in many other directions. It is, indeed, a formidable undertaking to examine individually all animals which are exported, to supervise the importation of animals from Eire and the Isle of Man at 32 points of entry, to supervise the transport of animals by land, sea and air, to inspect over 1,000,000 pig carcases *en route* for Great Britain each year."

The Minister of Home Affairs

The Rt. Hon. G. B. Hanna, Minister of Home Affairs, Northern Ireland, in replying, said : "On behalf of the Government of Northern Ireland, I want to say how grateful we are to Mr. Wilkinson for the felicitous manner in which he has submitted this toast, for the kindly things he has said about the Government, and to you ladies and gentlemen for the way in which you received it. When Mr. Wilkinson told us that your Association was indebted to the Government of Northern Ireland it occurred to me that it was the first time in my two years as Minister I had ever heard anybody admitting debt to the Government !

"I found to my amazement, when I took up office in the Ministry of Home Affairs, that my Department did impinge upon your specialty in certain respects. I found, for example, that you have on occasions prescribed poisons, and of course my Department is responsible for regulations in that connection under the Act. Again, I have some responsibility in the matter of enforcing the Dangerous Drugs Act and, by reason of your profession, your members are in possession of narcotics from time to time. Then, something perhaps of more immediate moment to you, I am responsible for the carrying out of the Penicillin Act. Mr. Wilkinson said something about sharing trouble. I can assure you I got my share of it under the Penicillin Act. I have given that matter some very careful thought. Suggestions have been made that the use of penicillin should be limited to occasions when a prescription was forth-

At the Editor's request Professors Newark, Baskett, Mitchell, Robertson, Lamont, Biggart and (*left*) Amoroso, were good enough to sit for this photograph so that our readers could consider for themselves the validity of Dr. Ashby's classification.

coming. I do not know whether that would be possible to enforce or not; but I rather gather that if I were to invite Parliament to make such a regulation I should not meet with very much opposition in this gathering. (Applause.)

"I do promise you that I have the matter under consideration. I am bound to say in this respect that so far as antibiotics are concerned I have not had any complaint from any animal that it had had too much! Maybe the use of antibiotics is restricted to non-talking animals—I do not know. But it is a matter that concerns you and me, and I promise you it is receiving attention."

Alderman R. J. R. Harcourt, Lord Mayor of Belfast, also replied.

The Toast of the B.V.A.

The health of the Association, coupled with the name of the President, was proposed by Dr. E. Ashby, Vice-Chancellor of Queen's University. In the course of his speech he said :—

" Despite the fact that I have had very little contact with animals, and very little with the veterinary profession, it was my privilege in Sydney for nine years to teach the elements of botany to nine generations of veterinary students. For in Sydney the training for the veterinary profession has for many years been inside the University and integrated with it : and I had ample opportunity to see the benefits of this integration. It was therefore a great satisfaction to me to read the Loveday Report and to watch a similar integration take place in this country.

" I am sure that at the time of the re-organisation of veterinary education you discussed at great length in your Association what the universities would have to offer the colleges if they became integrated with the university system. I hope you were not misled by the fallacy that the universities offer culture and refinement. What they do offer—and it is a great deal—is six centuries of experience in teaching the young and in maintaining standards of scholarship. In these matters we are experts and I am sure the profession will never have cause to regret that it has entrusted its recruits to our care.

" But there is another side to the question, less often discussed ; and so I'd like to say a word about it now. It is : what has the veterinary profession to offer to the universities ? I think I know the answer—or at any rate part of the answer—to this question ; for I saw in my nine years of teaching veterinarians in Sydney what the Faculty of Veterinary Science brought to the University there.

" It brought, I believe, three precious contributions. The first was a much more scientific attitude to health and disease than the medicals—most of them—brought. For the core of the scientific method is experiment, and it is far easier to adopt the experimental method in veterinary science than in medicine. Therefore I found that by and large the veterinary student was more interested in the science behind his clinical work than was the medical ; and this was a great stimulus to the University's biologists.

" Then there is a second contribution which the veterinary profession has to make to universities. It has (if I may say so respectfully to such an audience as this) got off on the right foot in its blending of ordinary clinical practice with animal preventive medicine, animal husbandry and animal nutrition. In clinical medicine there is still a gap between the clinician and his colleague who specialises on the social and economic conditions which keep people healthy and not in need of medical attention. In clinical veterinary medicine there is much less of a gap—or so it seems to me. I noticed, for instance, that the theme of your last autumn conference was Feeding for Health and Production. You had sessions on cattle and sheep and pigs and poultry. Can you imagine a conference of the B.M.A. on Feeding for Health and Production—with sessions on the nutrition and conditions for high production among miners, dockers, bus drivers, civil servants and students ? You laugh at the suggestion but there is a grain of a moral in it, too : for the veterinary profession has not separated those who keep animals fit from those who attend animals when they are ill ; and this gives your profession a characteristic quality which is very welcome in a university.

" Finally, there is a third contribution which veterinarians make to universities. You bring to universities a science and an art which is concerned with the major problem facing the world's future—assuming we have any future at all. If we have, we are going to have to solve the problem of matching the world's food supply to the world's population. And if universities have any future at all, they will have to be placed where hard thinking about this problem is done. In the large canvas of contemporary civilisation, the farm animal is a converter of pastures into calories. Its present efficiency is only 20 per cent. in a dairy cow and only 8 per cent. in a sheep. Through animal preventive medicine and good husbandry and nutrition these percentages have been increased and could be increased further ; and an increase of even a few per cent. would alleviate the problem and lift the menace of famine from millions. Last year I spent some time in East Africa, looking (among other things) at the prospects of developing veterinary education there ; and I came away with the conviction that the future of that great country depends on the veterinarian and the agriculturist more than on any other expert.

" This toast is coupled with the name of Professor Robertson, your President. On this topic my qualifications are admirable. For vice-chancellors are authorities on professors. We classify them into three species : *P. timidus*, the sort who have to be protected like innocent children ; the sort who leave their umbrellas everywhere (a rare species nowadays) ; *P. echinatus*, or prickly professor, who is always demanding more than the University can afford ; and *P. splendens*, who is efficient and reasonable, in fact so like a vice-chancellor that one can hardly tell the difference. I can assure you that Professor Robertson is in the third category.

" This prompts me to a digression. Why do you have such a monstrous crest, with the body of a horse and the head of a man ? Surely an Association which takes veterinary education so seriously should not mislead its young men with such an anatomical monstrosity ! And while I'm on the subject of your crest, may I suggest that you change the plant which floats in the air beside that monstrous animal. That plant,

Mr. Callender, the newly elected junior Vice-President, is seen with Mr. Sumner, President of the Royal College.

The platform party at the official opening of Congress. The Lord Mayor of Belfast is next to the President, with Professor Newark, pro-Vice-Chancellor of Queen's University, two places to the left.

ladies and gentlemen, is not a forage plant at all. It is, so far as I can see, a poor example of *Yucca filamentosa*, which contains an alkaloid poisonous to stock.

"But this is a digression. I claim to be an authority both on the race and the profession of your President ; and as a professor fancier in the sense that some of my predecessors in this speech have been horse fanciers, I congratulate him on his high office, and I ask you to rise and drink to the health of the great Association over which he presides, coupled with his own name."

The President's Reply

In responding to the toast Professor Robertson said : " I should, sir, thank you for the generous terms in which you have referred to this Association and to myself, and I should at the same time like to take this opportunity of conveying in your presence the appreciation that we as an Association have for all the efforts that have been made by your staff, from your Pro-Vice-Chancellor downwards, to help us in the arrangements which have made this such a successful Congress.

" You have been very kind in your remarks about myself, Dr. Ashby, and in spite of my lack of qualifications for the post or speech I shall do my best to reply and take up the challenge you threw out at the end of your speech about our symbol of office. I know I shall have to choose my field carefully. I am going to keep off the field of heraldry as I know nothing about it, and I am going to keep off the field of artistic merit because a couple of Scottish universities have successfully wiped out all the traces of incipient culture I ever had. But I shall cross swords on the grounds of symbolism, being careful when it comes to the plant. I must confess I always thought it was a plant chosen for the fact that the majority of our profession made their livelihood many years ago by administering potions containing its substance !

" I am, however, on better grounds when it comes to the centaur, representing a figure who, if my rudiments of classical education have not led me astray, was accredited with having taught the Greek god of medicine the rudiments of what he knew in that field,

and we have therefore accepted it as a badge of office because it shows our sister profession in medicine that we got off first and they learnt from us.

"You have spoken with great authority and with words which we appreciate about the scientific background to our work, and we in this Association do a great deal to try and foster that aspect of the work, particularly through our Technical Development Committee which spreads information about recent advances in the scientific field amongst our members. I wonder sometimes, however, whether we as an Association should not do more in that respect because we have under our articles of association (which like myself most of you have probably never read) powers to expend monies on fostering research and producing new veterinary instruments. Now that our finances are improving it is time the officers started considering whether or not we should do more to foster research in the veterinary sphere as well as to distribute the knowledge gained by its results.

"It gives me particular pleasure to hear references from such an eminent administrator and thinker as yourself to the importance of veterinary preventive medicine, a subject in which I have the honour to profess in my own university. Veterinary preventive medicine plays a very large part in the activities of the profession. Some 10 per cent. of our members spend the whole of their working time in that particular field, and those who have studied the papers on statistics which have been produced at this Congress will have noticed that our practitioners in the large-animal sphere spend at least 50 per cent. of their time on work of a prophylactic nature. I think myself that more might be done in the way of instituting Chairs in this sphere of our work, and that some of the newer colleges might perhaps take a lead from the older ones in that respect. I notice our friends from the Royal College here and I would suggest that when they are visiting the newer schools and guiding them in their steps towards the best application of veterinary medicine they might keep that particular point in mind.

"You, sir, have emphasised with great effect the important part of veterinary preventive medicine in the wider sphere of world affairs, and I should like to underline that and express my own views on the importance of the veterinary surgeon in relation to a topic about which we hear a great deal nowadays, that is the question of world peace. It is true, I think, that a large proportion of the population in the under-developed countries of the world are living under conditions of disease and malnutrition which do much to foster discontent and from which world tensions arise, and on which the various 'isms' of which we hear so much to-day thrive; and no greater contribution could be made to reducing those tensions and stopping the political warfare in the minds of men than an increase in food production through the activity of our profession combined with that of our colleagues in agriculture.

"I would make bold to suggest that the future of this world lies not in the hands of the politicians and not in the hands of the United Nations, but in the hands of a small group of men and women, professional men and administrators scattered throughout the world, in the backwoods of Borneo, in the clearings of Kenya, who are working away, unknown, to try to help their fellow men to acquire a higher standard of living than they have to-day, and to try to come some way towards attaining what we have attained in western civilisation.

"I thank you, sir, for your inspiring remarks which will drive us on to ever greater efforts to encourage those of our members who are doing the work in this field." (Applause.)

"Our Guests"

Professor H. G. Lamont, President, North of Ireland Veterinary Association, in proposing the guests, said:—

"I have a very long list of guests; guests who have played a worth-while part not only in the affairs of Northern Ireland but also in very much wider fields and in other countries. To read this list alone would almost be an after-dinner speech and to do justice to everyone is far beyond my powers.

"The Lord Mayor has already been referred to. I need say no more beyond recalling that Sir Crawford McCullagh was Lord Mayor on the occasion of the previous Congress in 1935 and now on this occasion we have Mr. Harcourt. Members will go away with the idea that Belfast always has first-class Lord Mayors and, of course, we have.

"Our President has referred to the great help that Queen's has given us. As Chairman of the Provisional Committee, may I say this Congress could not have been held but for Queen's, and for that reason we are particularly honoured that the Pro-Chancellors of the University are here to-night, Brigadier Sinton, V.C., and our own Lord Chief Justice, Lord McDermott, and Lady McDermott. We have all heard Dr. Ashby. The citizens of Northern Ireland are justly proud of him. Unfortunately, Vice-Chancellors are one of our exports. I do not know under what heading the Board of Trade would classify them, but I am hopeful that in the case of Dr. Ashby the Veterinary Department will refuse to grant an export licence.

"Visitors to Belfast to the 1935 Congress will remember another George B. Hanna, father of the present George B. Hanna, and indeed I can assure young George, if he will forgive me for referring to him so disrespectfully, that his father is often spoken of where the older generation of 'vets.' foregather. His father charmed us at the previous Congress. He was a wonderful man and I think it is just delightful to have his brilliant and talented son, the Minister of Home Affairs in Northern Ireland, here to-night.

"Distinguished veterinarians from other countries have honoured this Congress by their presence and have added to its importance by taking part in our deliberations. I do not propose to mention all these countries, or to attempt to pronounce their names, but we are very honoured indeed to have these people with us.

"There are one or two, however, that I must mention. We have with us to-night Dr. Mingle from the United States of America. Dr. Mingle played an active part in the launching of S.19 *Brucella abortus* vaccine, not only in his own country but in Great Britain and other countries. We have a little country which competes with us—Denmark. They have sent a most delightful representative in the person of Dr. Nielsen. He has captured the hearts of many of our wives, which is the same sort of thing his forebears did many centuries ago in a much ruder manner!

"We have also Dr. Scott Russell at our Congress, who with Dr. Loutit is responsible for much of our knowledge of the effects of atomic explosions on plants and animals. We have many other distinguished guests, quite a number of professors—and you have all heard of Professor Newark and the delightful welcome he gave to us on Monday morning. We have also quite a number of our colleagues from Dublin and I would give them a very special welcome indeed. We are delighted to see them. You will appreciate my difficulty, with so many distinguished people, in deciding what names should be mentioned and what is the order of precedence. I hope no one will be offended, therefore, if he is not mentioned.

"I cannot, however, pass without making very special mention of the President of the Royal College of Veterinary Surgeons and his Registrar. Mr. Harry Sumner is a welcome guest in Northern Ireland, not only because of the high office he adorns but because he is Harry Sumner. Mr. Oates, the Registrar of the Royal College of Veterinary Surgeons, trained here during the war.

"We are all sorry that Mr. J. I. Magowan, Permanent Secretary of the Ministry of Agriculture for Northern Ireland, is unable through illness to be present. We are very proud, and justly proud, of the fact that a member of the veterinary profession is Permanent Secretary to the Minister of Agriculture in Northern Ireland. He has served his profession well, and we hope he will soon be restored to health again.

"I now come to the Press. The Press do us a great service and help us to put our opinions before the public, and we are very grateful indeed and honoured that the Press have sent representatives here to-night.

"This toast is coupled with the names of Professor J. H. Biggart, the Dean of the Faculty of Medicine in Queen's University, and with that of Mr. West, Member of Parliament and President of the Ulster Branch of the Farmers' Union.

"Speakers on many occasions have referred to human medicine and veterinary medicine as being sister professions. Indeed, they are almost identical twins as the only difference is in the nature of the animal with which they work. We have much in common and it is too often overlooked that both professions have a very similar training. Dr. Ashby has referred to the fact that the universities are responsible for veterinary education. In the fundamental sciences the training is identical. The subjects of physiology, pathology and bacteriology have a common basis. I emphasise this point in particular for the benefit of our Minister for Health and also for the information of the various county medical officers. We welcome representatives of the medical profession and the Ministries here to-night and I hope they will note this particular point because when it comes to the question of public health matters, only the best is good enough and neither cheapness nor vested interests should be the deciding factor.

"My colleagues will notice the great restraint I have exercised in not mentioning meat inspection!

"In Professor Biggart we have a man who has taken a keen interest in affairs veterinary. I take this opportunity of acknowledging the unstinting and, probably what is more important, the kindly help and advice which he gives to our Veterinary Research Division in Northern Ireland. Professor Biggart is a very distinguished pathologist and is recognised as an authority on the central nervous system, and I feel that we are very fortunate indeed to have a man of his calibre. His reputation as a teacher is well known and he is recognised as one of the best examiners in the subject of pathology in Britain.

"Mr. Harry West is first and foremost a farmer. He is also a Member of Parliament and makes his weight felt in agricultural affairs. He is also president for 1955 of the Ulster Farmers' Union and is, therefore, head of our most important industry. We hear much about feather-bedding in agricultural prices. I know some of the things that farmers have to contend with and I think they are entitled to some feather bedding."

Professor Biggart

Professor J. H. Biggart, Queen's University, Belfast, in replying, said :—

"I should like to pay tribute to the many pleasant associations I have had in the past with members of the veterinary profession. In the past 17 years I have been stimulated by the research work which has been performed at our local research station.

"It is easy to draw distinctions between the science of medicine and veterinary science. They are in certain ways very similar; they are, as the Vice-Chancellor said, in many ways different. But I should like to point out that Columbus, using subjective assumptions, false hypotheses, and steering a course which has been given up by modern navigation, nevertheless discovered America. Dealing with humanity, we cannot pursue quite so easily our scientific trends as we should like, still occasionally we do discover some things.

"On behalf of the guests I would simply add this: We have eaten your dinner and drunk your wine, we have had your company and we are in the position of knowing that it was very good company to be in—and on behalf of those guests for whom I speak I would thank you."

Mr. H. W. West, President, Ulster Farmers' Union, also replying, said :—

"As a farmer myself, and as head of this organisation which represents the majority of those hard-working people who man the country's largest and oldest and most important industry, I want to recognise the very close relationship which exists between our industry and your profession. I think you will agree that you could not get on very well without the agricultural industry, but I can assure you also that our industry would be in a very poor state indeed if it had not got the help of the veterinary profession.

"We, both your profession and my industry, have travelled a very long way together. Professor Lamont has cleared our minds as regards many fallacies, and he and his colleagues have directed the farming community of Ulster along the line that prevention is always better than cure, and we have tried to make our stock a healthier stock rather than allow them to deteriorate to a state when it was almost too late to try to effect a cure.

"In Northern Ireland, as many of you will under-

stand, because of its climatic conditions and geographical situation, our industry largely devotes its efforts to production of livestock, and you can readily understand the very wide field that this creates for veterinary science. I want to endorse here and now everything that Mr. Wilkinson said in his remarks earlier about the service that is provided to agriculture in this country by all branches of the veterinary profession. I can assure you that here in Northern Ireland the agricultural industry feel they have a service second to none. They have the Veterinary Research Department of which they are justly proud, the veterinary practitioners are as good as they are anywhere else in the world, in our estimation."

The President's Speech to the Association.

(Continued from page 707)

in spite of criticisms of individual items, it would seem that a majority in our ranks is satisfied that the provision of a body of properly trained and certificated lay-people controlled by a code of ethics could provide a useful adjunct to our profession. I must say that in spite of misgivings about some details of the present proposals I am glad that this decision was taken. The art of our profession on which in years gone by we had to rely almost entirely has been more and more supplemented by scientific knowledge and there is thus an increasing necessity for a higher standard and greater breadth of knowledge in our professional work and a greater call than ever before for our higher skills in ever widening spheres of activity. The logical outcome, in the interests both of efficiency and economy, would seem to my mind to be the delegation of certain routines to the trained layman, keeping our profession reasonably compact as a body of highly skilled, highly valued, and it is to be hoped, highly paid professional men. Our medical colleagues have gained in efficiency and in status by the delegation of many such duties and I am satisfied that the same could prove true in our case.

I would agree, of course, that this is a realm in which we do well to make haste slowly for there are many pitfalls to be guarded against but it is a source of satisfaction to me to feel that in my year of office, although due to no action or merit on my part, such a far-reaching scheme has come forward and has, by and large, been agreed to in broad principle.

The Animal Welfare Societies

I am unable, alas, to report any such satisfactory outcome in the problem my colleague Mr. Thomson referred to last year of the encroachment of certain animal welfare societies in the field of small-animal practice. Together with our colleagues in the Royal College we have had a number of meetings with the P.D.S.A. in an endeavour to bring about improvements in our relationship and in the standard of service, and there seems to be no valid reason why an agreement satisfactory to all parties could not be reached. I cannot help feeling, however, that the problem goes deeper than this and that the time is well-nigh ripe for a full-scale investigation by some official body into the whole question of the utilisation of the funds collected by such charitable organisations. Many of them are, I know, worthy bodies led by people of the highest integrity and inspired by the noblest of motives, but there is inevitably a great deal of unnecessary overlapping and duplication of services while the publicity given to certain unfortunate incidents within the Societies themselves naturally give rise to doubts as to whether the funds are always used as effectually as they might be for the purpose for which they were intended.

An impartial enquiry would, I am sure, be welcomed by the majority of the organisations concerned and would in the long run prove of benefit to the Societies themselves as well as to the animals they wish to befriend. I do not wish to imply that there is here any *cause célèbre* the revelations of which would shake the conscience of the community but overlapping as well as poor standards of treatment undoubtedly exist. Any action which reduced duplication of effort and at the same time ensured the availability of more professional advice for the sick animals of the poor should be welcomed on every hand, as being in the interests of an objective we all share, in the provision for all the humbler companions of man, of the best attention and skill our profession can provide.

I must apologise if much of what I have been saying sounds strange in Irish ears. Indeed, I would not be surprised if some of you are feeling like the gentleman from County Monaghan who, on receiving a recent B.V.A. circular on Penicillin which was quite inapplicable to his local conditions wrote to us, "of all the nonsense I have ever seen this beats all." In extenuation may I explain, therefore, that most of the difficulties with which your Officers have to contend arise not in Northern Ireland, nor even in Scotland, two countries in which our legitimate aspirations meet normally with a sympathetic and even encouraging reception. I need say no more !

In an Association like ours so full of vitality and continually marching forward there are many other subjects to which I could usefully refer but time is short and having mentioned those of most particular interest to myself, and I hope to you, I must now draw these remarks to a close.

May I therefore conclude by thanking you most gratefully for your support and loyalty during my presidential year, for the good humour with which you have overlooked my many shortcomings and for the renewed evidence of personal kindness and friendship which more than all else will have made this a year of my life which will never be forgotten.

The President and Mrs. Robertson are seen with Professor and Mrs. Lamont.

News and Comment

CONGRESS NOTES

The Civic Reception

The Rt. Hon. the Lord Mayor of Belfast, Alderman R. J. R. Harcourt, J.P., who was accompanied by the Lady Mayoress, welcomed delegates to Congress at a Civic Reception in the City Hall on Monday evening, September 5th. Members of the Northern Ireland Parliament and of the City Council met the delegates also. The reception was followed by a ball which lasted until midnight. The splendid building was *en fête* for the occasion, and no effort was spared on the part of the civic authorities to make the occasion a notable one. The warmth of the welcome accorded by the principal citizen, his lady, and the other distinguished personages made an ideal termination to the first day's proceedings.

The Government Reception

Lord Brookeborough, the Prime Minister of Northern Ireland, who was accompanied by Lady Brookeborough, received the Officers, the President of the North of Ireland Division and Mrs. Lamont, together with a large number of delegates, their wives and friends at Parliament Buildings when the Government gave a Reception to Congress on September 6th. The guests much admired the noble proportions of the buildings, their commanding position dominating a broad and fertile countryside, and the superb drive up to the main entrance. Various portions of the buildings were inspected, after which the visitors took tea, to the playing of a pleasant orchestra, and walks on the terraces which command wide and beautiful views. The Association was deeply indebted to the Government for its gracious gesture in thus receiving Congress, and the reception at Stormont remains among the most happy of many happy experiences during the week. It is interesting to recall, incidentally, that when Congress was held at Belfast in 1935 the present Prime Minister contributed much to the success of the occasion in his then capacity of Minister of Agriculture.

Ulster Night

The very name of this festivity, which took place at the Orpheus Ballroom on September 8th, excited the liveliest anticipations—nor were these disappointed. From the moment when Professor Lamont, the embodiment of genial hospitality, welcomed the

The Officers (1954-5) with their ladies. *Left to right,* Mrs. Ingram, Mr. Bywater, Mrs. Wilkinson, Mr. Thomson, Mrs. Robertson, the President, Mrs. Thomson, Mr. Wilkinson, Mrs. Bywater and Mr. Ingram.

packed company, the party spirit took charge, and this was, by common consent, an outstanding gathering.

Liberal aperitives ushered in cold supper, of which the foundation comprised chicken and champagne. Nor were the enjoyments wholly gastronomic, for super-added to other luxuries was a choir of attractive young ladies—the Belfast Girls Choir—whose appearance, to say nothing of their delightful part-singing, was greeted by the delegates with stentorian approval. They sang a number of traditional airs, while our Northern Ireland hosts led the choruses of "Phil the Fluter's Ball" and other classics *falsetto è fortissimo*. This contribution, together with a mighty ground bass from the visitors over the water produced a variety and volume of sound hardly to be described.

There were soloists, an elocutionist and a conjurer, all local artists and all excellent. There were quips from the President, graceful tributes from Mr. Ritchie, and a stirring plea from Mr. Hignett not to let the moon set upon half-emptied bottles. Midnight struck all too soon, and after vast performances of "They (the organisers of the feast) are jolly good fellows," and "Auld lang syne" the company departed, slightly throbbing, to their beds.

The Dalrymple-Champneys Cup and Medal

In the course of the Annual General Meeting, the full proceedings of which will be published in a forthcoming issue of THE SUPPLEMENT, the Dalrymple-Champneys Cup and Medal were presented to Mr. Horace Thornton. In making the presentation the President said:—

"Horace Thornton's name is synonymous in all our minds with two things; Newcastle and Meat Inspection. It seems to me that that must be perfectly fortuitous because I believe there are other places in England and Wales where meat inspection is carried out although, of course, we do not know what they are like and we are not allowed to know much about most of them because they give our profession little chance to show our skill. Newcastle is, and always has been, the home of meat inspection. It has always been different from other parts of the country, probably because it is fairly close to Scotland, and in Horace Thornton it has found, or perhaps I should say created, one of the most outstanding exponents of the subject at the present day. His text-book is used everywhere in spite of two drawbacks, its weight and its price, but there is nothing quite to touch it in the English language. I would not be surprised,

The organisers of the Congress with their wives. *Left to right*, Mrs. W. A. M. Gordon, Dr. J. K. L. Pearson, Mrs. Pearson, Professor H. G. Lamont, Mrs. Lamont, Mr. W. A. M. Gordon, Mrs. W. R. Kerr, Mr. D. Luke and Mrs. Luke.

however, if it appears eventually in many languages for Mr. Thornton has now become an international figure, an ardent part-time servant of the World Health Organisation, and his homely figure and pawky wit are widely known in many lands from Singapore to Colombia, and shortly, I understand, that may become the classical China to Peru.

"It is indeed a very great compliment to our profession and to our Association that one of our members should be so frequently the number-one choice of the World Health Organisation for the important task of guiding the under-developed countries in the expansion and improvement of their meat industries, for that organisation, although a United Nations one, is largely American financed and, one might venture to suggest, American controlled, and America has definitely outstripped us in developing many aspects of veterinary public health work. In this particular field, however, they give us best and the reason you see before you in the person of the new recipient of this high honour."

In his reply, which was frequently interrupted by applause and loud laughter, Mr. Thornton said:—

"There is a Latin quotation which goes *'Quis seit, quid nox feret,'* and those of you who have the doubtful advantage of a classical education will know that that means 'You know not what the night will bring.' There is no doubt in our minds what the 'knight' in the presence of the person of Sir Weldon Dalrymple-Champneys has brought to this profession by this gift which bears his name. Sir Weldon to me conveys all that is best in one of our noble English families. He has bequeathed himself to us as well as to science and medicine, and has brought further dignity and knowledge to the science of healing.

"I sometimes wonder whether my name conveys anything to Sir Weldon. I rather hope not. A few years ago we were co-examiners to a certain scientific body and over a glass of sherry, which, incidentally, is the only tangible recognition we get for our labours from that particular institution, he confided to me that all was not well with his cat. From his description, I agreed with him, and it reminded me somehow of the Ancient Mariner; 'he was long and gaunt and lean . . .' and so I prescribed for him using, if I remember, a method known as ionic radiation and we both leaned back quite happy that all would be satisfactory with our feline friend. A few days later I met a practitioner and he told me in no uncertain manner that my diagnosis, prognosis and treatment had been so widely inaccurate that I would be wise to avoid Sir Weldon from now on. So far I have been successful, but I sometimes wonder whether my fears may have been groundless.

"A week later I met a certain practitioner and he described to me how he had been recently called in to treat a giant tortoise imported from the Galapagos Islands. It had come by air and it had shown its allergy to air travel by developing double pneumonia. I sat enthralled as he described to me the drugs he administered—*per os, per rectum,* subcutaneously—and two thoughts passed through my mind; one of surprise to hear that the tortoise had two lungs, and one of wonder as to just how in a tortoise one administers a subcutaneous injection.

"This, however, has little to do with my immediate duty which is to express to you all my great gratification for this signal honour you have conferred upon me. Naturally, when one heard of this honour one was constrained to read the names of the previous recipients of the award, many of them one's friends, and amongst them one noticed the name Minett, now unfortunately no longer with us, and such other friends as Dalling, Reynolds and Taylor, but, naturally, it was gratifying to see that this would appear to be the first time it has been awarded to any member solely engaged in meat inspection. The meat inspection service throughout the world—and I can speak now with some knowledge on that point—is wholly related to the part the veterinary profession plays in it. What the future will hold it is difficult to say, but I am able to speak here with a little more freedom than some previous officers of this Association, and let me say at once that it is my considered opinion that the only future for meat inspection is a service of a national character controlled by the veterinarians." (Applause.)

We hope to publish further notes and photographs next week.

A UNIVERSITY OF LONDON LECTURE

A special university lecture in Human Anatomy and Morphology will be given by Dr. J. Hammond, C.B.E., M.A., F.R.S., Honorary Fellow of Downing College, Cambridge, under the title "Growth in Animals." The lecture will be delivered at the Charing Cross Hospital Medical School, Chandos Place, W.C.2, at 5 p.m. on Friday, November 4th, 1955. The Chair will be taken by Professor W. J. Hamilton, D.SC., M.D., F.R.S.E., Professor of Anatomy in the University of London. The lecture is addressed to students of the University and to others interested in the subject, and admission is free, without ticket.

INTERNATIONAL CONFERENCE ON THE USE OF ANTIBIOTICS IN AGRICULTURE

It is understood that Dr. J. Duckworth, of the Rowett Research Institute, Aberdeen; Dr. W. S. Gordon, Director of the Agricultural Research Council Field Station, Compton, Berkshire; and Dr. S. K. Kon, of the National Institute for Research in Dairying, Reading, have been invited to attend the first International Conference on the Use of Antibiotics in Agriculture, to be held in Washington during October.

The United States National Academy of Science, on whose advice the invitations were sent, the United States Agricultural Research Institute, and leading American agricultural antibiotic producers, are sponsors of this conference. They hope to bring together research scientists from 13 major agricultural nations for exchange of data and study of latest developments in this field. Such problems as "Growth Response In Animals," "Mode of Action" and "Public Health Aspects," as well as a number of other topics, will be discussed. The question of what part antibiotics can play in food preservation, and in horticulture, will be raised in one of the five sessions planned.

After the meeting in Washington the scientists will proceed to United States experimental stations and then complete their tour with a visit to the Lederle Research Laboratories at Pearl River in New York state, where the use of antibiotic feed supplements was first developed and where much of the technical research has since been carried out.

MINISTER OF AGRICULTURE, FISHERIES AND FOOD TO VISIT DENMARK

The Minister of Agriculture, Fisheries and Food, the Right Hon. D. Heathcoat Amory, M.P., will be in Denmark from September 18th to 21st as the guest of the Danish Government. He will be returning the visit which Mr. Smørum, the Danish Minister of Agriculture, made to this country earlier this year. Mr. Heathcoat Amory will be accompanied by Professor H. G. Sanders, the Ministry's Chief Agricultural Scientific Adviser, and Mr. J. H. Perrin, a Principal in the Ministry.

In the course of his stay, the Minister will meet other members of the Danish Government, and his programme will include visits to farms, food processing plants, research institutes and State experimental farms.

PERSONAL

Births

CARR.—On September 12th, 1955, to Gladys, wife of Walter H. Carr, B.V.SC., M.R.C.V.S., of London Road, Leicester, a daughter, Pamela Louise.

SAMUEL.—On September 7th, 1955, at Hillersdon House, Cullompton, Devon, to Anne (*née* Baylay) and Michael Samuel, M.R.C.V.S., the gift of a daughter, Christiane Frances.

COMING EVENTS

September

20th (Tues.). Meeting of the East Midlands Division, B.V.A., at Messrs. Chappie Ltd., Mill Street, Melton Mowbray, 2.30 p.m.

22nd (Thurs.). Meeting of the Essex Division. B.V.A., at the Essex Institute of Agriculture, Writtle, Essex, 7.30 p.m.

23rd (Fri.). Meeting of the North Wales Division, B.V.A., at "Bryn Adda," Dolgellau, 2 p.m.

30th (Fri.). Meeting of the Welsh Branch, B.V.A., at the Belle Vue Hotel, Aberystwyth.

October

6th (Thurs.). Meeting of Western Counties Division, B.V.A., at 2.15 p.m.

General Meeting of the Central Division, B.V.A., at the Royal Veterinary College, Camden Town, N.W.1, 5.30 p.m.

6th (Thurs.). Autumn Meeting of the North of Scotland Division, B.V.A., in the Cairngorm Hotel, Aviemore, 1.30 p.m.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Bedford. Fenlake Meadows, Cardington Road, Bedford (Sept. 5).

Derby. Barton House Farm, Barton Fields, Church Broughton; The Grove, Drakelow (Sept. 8).

Flints. Wallington Lane Farm, Worthenbury (Sept. 6).

Notts. Piggery Yard, Wood Lane, North Wheatley, Retford (Sept. 5).

Staffs. Chase View, Abbots Bromley, Rugeley (Sept. 3); Fair Oak Grange Farm, Eccleshall, Stafford (Sept. 5); Church Farm, Bishopswood, Stafford (Sept. 6).

Wigtown. No. 1 Holding, Fineview, Glenluce, Newton Stewart (Sept. 5).

Atrophic Rhinitis

Berks. Broadland Farm, Sunninghill, Ascot (Sept. 3).

Fowl Pest

Beds. Woodlands Poultry Farm, Clapham (Sept. 8).

Swine Fever

Bucks. Fawley Bottom Farm, Fawley, Marlow (Sept. 10).

Essex. 32, Castle Road, Rayleigh; The Stie, Ivydene, Lodge Lane, Colliers Row, Romford (Sept. 12).

Lancs. Brunt Boggart Cottage, Water Lane, Tarbock, Prescot (Sept. 7); Princes Poultry Farm, Halsnead Park, Whiston, Prescot (Sept. 8).

Middx. 239, Nelson Road, Whitton, Twickenham (Sept. 10).

Norfolk. Pockthorpe, Barnham Broom, Norwich; Fields Nos. 70 and 100, Middle Farm, Feltwell, Thetford (Sept. 7); Dunthorne Smallholding, Ivy Road, Spixworth; Longham Hall, East Dereham; Hardwick Road Allotment, Kings Lynn (Sept. 9); Little Thoms Farm, Swaffham (Sept. 10); New Common March, Terrington St. Clement (Sept. 12).

Northants. Cornhill Farm, Pattishall, Towcester (Sept. 8).

Notts. The Cross, Carlton in Lindrick (Sept. 9).

Salop. Upper Mill, Pontesford (Sept. 10).

Staffs. High Onn Wharf, Church Eaton (Sept. 8).

ADVERTISERS' ANNOUNCEMENTS

Evans Medical Supplies are pleased to announce the introduction of a new product, Nemazine (Trade Mark). Phenothiazine dispersible powder B. Vet C. with added copper and cobalt for use as an anthelmintic. Available in 1 lb. and 7 lb. tins (with 5 g. measuring scoop). Prices on application to Veterinary Information Department at Speke, Liverpool, or Ruislip, Middlesex.

Benger Laboratories Limited announce the introduction of a new product, "Imferon" Veterinary, for the single dose control of piglet anaemia. "Imferon" was first developed for the treatment of human anaemia and its efficiency for that purpose is now fully established. A veterinary version of the product has just become available (to the veterinary profession only) and was shown for the first time at the British Veterinary Association Congress at Belfast. "Imferon" Veterinary is presented in multidose containers of 20 ml. It is distributed by Boots Pure Drug Co. Ltd., Nottingham; C. J. Hewlett & Son Ltd., Watford; Willington Medicals Ltd., Shrewsbury; Willows Francis (Pharmaceutical Products) Ltd., London